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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,184	07/24/2003	William E. Welnick	CS23200RL	1465

20280 7590 06/20/2006

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EXAMINER	
ADDY, ANTHONY S	

ART UNIT	PAPER NUMBER
2617	

DATE MAILED: 06/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/626,184	WELNICK ET AL.	
	Examiner	Art Unit	
	Anthony S. Addy	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) *14-16* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 17-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 August 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2617.

Election/Restrictions

2. Applicant's election without traverse of **Group I**, **claims 1-13** and **17-19** in the reply filed on April 03, 2006 is acknowledged.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-13 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Joshi et al., U.S. Publication Number 2004/0203838 A1 (hereinafter Joshi)**, and further in view of **Krause et al., U.S. Patent Number 6,160,799 (hereinafter Krause)**.

Regarding claims 1, 4 and 5, Joshi teaches a method in a wireless communications device that allocates neighbor signals to a candidate set (see p. 4 [0055-0056], p. 5 [0059] and Fig. 9), the method comprising: determining a number of signals in an active set (see p. 5 [0065-0066]); allocating signals to the candidate set

more quickly when the number of signals in the active set is less than a threshold number than when the number of signals in the active set is greater than the threshold number (see p. 5 [0059 & 0065-0070] [i.e. The teaching of Joshi that, mobile station asks whether a count of base stations in the active set exceeds a prescribed number (Na), for example, the number "one" and if there is a sufficient number of active set base stations, then off-frequency searching is ***not as critical*** as with an under-populated active set, in combination with the teaching of Joshi that, after on-frequency and off-frequency searching the mobile station may promote a base station from the mobile station's non-candidate neighbor set to its candidate set, broadly reads on the limitations "allocating signals to the candidate set more quickly when the number of signals in the active set is less than a threshold number than when the number of signals in the active set is greater than the threshold number" since Joshi teaches if off-frequency searching is necessary, i.e., when there is an under-populated active set, the mobile station finds off-frequency searching to be ***critical,*** therefore would promote a base station from the mobile station's non-candidate neighbor set to its candidate set quickly to avoid lost communications or drop calls]).

Moreover, in an analogous field of endeavor, Krause teaches a method and apparatus for maintaining the pilot set of a wireless communication device, such as a portable radiotelephone operating in a CDMA system, wherein the method and apparatus significantly improves the device's performance in a rapidly changing environment by quickly and reliably determining and promoting strong neighbor pilots to the candidate set (see col. 2, line 66 through col. 3, line 5). According to Krause, if the

mobile station is not able to promote the new strong neighbor pilots to the candidate set quickly enough, i.e., before communication on the active pilots is lost, then the call will drop, thus a need therefore exists in a rapidly changing mobile environment to maintain the pilot set in such a manner that the strong pilots are quickly determined and promoted to the candidate set (see col. 2, lines 40-56).

It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Krause with the method of Joshi to reliably and quickly allocate strong pilots to the candidate set in a rapidly changing mobile environment, in order to avoid drop calls or lost communications on the active pilots as taught by Krause (see col. 2, lines 40-56 and col. 3, lines 1-5).

Regarding claims 2 and 3, Joshi in view of Krause teaches all the limitations of claim 1. The combination of Joshi and Krause fails to explicitly teach allocating signals to the candidate set includes delaying the allocation of signals to the candidate set for a first delay interval when the number of signals in the active set is less than the threshold number, delaying the allocation of signals to the candidate set for a second delay interval when the number of signals in the active set is greater than the threshold number, and delaying the allocation of signals to the candidate set for the first delay interval includes immediately promoting signals to the candidate set when a strongest of the active signals does not meet a signal quality threshold, wherein the first delay interval is less than the second delay interval.

However, one of ordinary skill in the art further recognizes that based on the teaching of Joshi that the mobile station asks whether a count of base stations in the

active set exceeds a prescribed number (Na), for example, the number "one" and if there is a sufficient number of active set base stations, then off-frequency searching is ***not as critical*** as with an under-populated active set, in combination with the teaching of Joshi that, after on-frequency and off-frequency searching the mobile station may promote a base station from the mobile station's non-candidate neighbor set to its candidate set, it is obvious when the number of signals in the active set is less than the threshold number [i.e. an under-populated active set], allocating signals to candidate set includes delaying the allocation of signals to the candidate set for a first delay interval, since Joshi teaches if off-frequency searching is ***critical,*** i.e., when a count of base stations in the active set is below a prescribed number, the mobile station will consider base stations from the mobile station's non-candidate neighbor set at a faster rate [i.e. constitutes a first delay interval] compared to when a count of base stations in the active set exceeds a prescribed number when off-frequency searching is ***not as critical***, the mobile station will search base stations from the mobile station's non-candidate neighbor set at a slower rate [i.e. constitutes a second delay interval] since the active pilots in the active set exceeds a prescribed number and can be used by the mobile station for communication (see p. 5 [0059 & 0065-0070]). Furthermore, it is obvious the first delay interval is less than the second delay interval, since when frequency searching is ***critical,*** the mobile station will consider base stations from the mobile station's non-candidate neighbor set at a faster rate compared to when off-frequency searching is ***not as critical***, the mobile station will search base stations from the mobile station's non-candidate neighbor set at a slower rate.

It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to modify Joshi and Krause, wherein allocating signals to the candidate set includes delaying the allocation of signals to the candidate set for a first delay interval when the number of signals in the active set is less than the threshold number, and delaying the allocation of signals to the candidate set for a second delay interval when the number of signals in the active set is greater than the threshold number, wherein the first delay interval is less than the second delay interval, in order to reliably and quickly allocate strong pilots to the candidate set in a rapidly changing mobile environment, to avoid drop calls or lost communications on the active pilots.

Regarding claim 7, Joshi in view of Krause teaches all the limitations of claim 1. Joshi further teaches allocating neighboring signals to the candidate set based on signal promotion criteria (see p. 5 [0059]), allocating signals to the candidate set when the number of signals in the active set is less than the threshold number based on consideration of signal promotion criteria for not more than one scanning period (see p. 5 [0059 & 0065-0070]).

Regarding claim 8, Joshi in view of Krause teaches all the limitations of claim 1. In addition, Joshi teaches allocating signals to the candidate from a pre-candidate set (see p. 5 [0059]).

Regarding claims 9, 10, 11, 12 and 17, Joshi teaches a method in a wireless communications device that allocates neighbor signals to a candidate set based on criteria considered over at least one scanning period (see p. 4 [0055-0056], p. 5 [0059] and Fig. 9), the method comprising: determining a number of signals in an active set

(see p. 5 [0065-0066]); when the number of signals in the active set is greater than a threshold number, allocating neighbor signals to the candidate set using criteria considered over more than one scanning period (see p. 5 [0059 & 0065-0070] [i.e. The teaching of Joshi that, mobile station asks whether a count of base stations in the active set exceeds a prescribed number (Na), for example, the number "one" and if there is a sufficient number of active set base stations, then off-frequency searching is ***not as critical*** as with an under-populated active set, in combination with the teaching of Joshi that, after on-frequency and off-frequency searching the mobile station may promote a base station from the mobile station's non-candidate neighbor set to its candidate set, broadly reads on the limitation "when the number of signals in the active set is greater than a threshold number, allocating neighbor signals to the candidate set using criteria considered over more than one scanning period" since if off-frequency is ***not as critical,*** i.e., when a count of base stations in the active set exceeds a prescribed number, the mobile station will consider more base stations from the mobile station's non-candidate neighbor set, thus perform a slower search considering more than one base station from the mobile stations non-candidate neighbor set]); when the number of signals in the active set is less than the threshold number, allocating neighbor signals to the candidate set using criteria considered over fewer scanning periods than when the number of signals in the active set is greater than the threshold number (see p. 5 [0059 & 0065-0070] [i.e. The teaching of Joshi that, mobile station asks whether a count of base stations in the active set exceeds a prescribed number (Na), for example, the number "one" and if there is a sufficient number of active set base stations, then off-

frequency searching is ***not as critical*** as with an under-populated active set, in combination with the teaching of Joshi that, after on-frequency and off-frequency searching the mobile station may promote a base station from the mobile station's non-candidate neighbor set to its candidate set, broadly reads on the limitation "when the number of signals in the active set is less than the threshold number, allocating neighbor signals to the candidate set using criteria considered over fewer scanning periods than when the number of signals in the active set is greater than the threshold number" since if off-frequency is ***critical,*** i.e., when a count of base stations in the active set is below a prescribed number, the mobile station will consider more base stations from the mobile station's non-candidate neighbor set faster than when a count of base stations in the active set exceeds a prescribed number, thus performing a faster search over fewer scanning periods to consider a base station with a stronger pilot from the mobile stations non-candidate neighbor set to prevent a drop call or lost communication]).

Moreover, in an analogous field of endeavor, Krause teaches a method and apparatus for maintaining the pilot set of a wireless communication device, such as a portable radiotelephone operating in a CDMA system, wherein the method and apparatus significantly improves the device's performance in a rapidly changing environment by quickly and reliably determining and promoting strong neighbor pilots to the candidate set (see col. 2, line 66 through col. 3, line 5). According to Krause, if the mobile station is not able to promote the new strong neighbor pilots to the candidate set quickly enough, i.e., before communication on the active pilots is lost, then the call will

drop, thus a need therefore exists in a rapidly changing mobile environment to maintain the pilot set in such a manner that the strong pilots are quickly determined and promoted to the candidate set (see col. 2, lines 40-56).

It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Krause with the method of Joshi to reliably and quickly allocate strong pilots to the candidate set in a rapidly changing mobile environment, in order to avoid drop calls or lost communications on the active pilots as taught by Krause (see col. 2, lines 40-56 and col. 3, lines 1-5).

Regarding claims 6 and 13, Joshi in view of Krause teaches all the limitations of claims 1 and 9. Joshi further teaches allocating signals to the candidate set using criteria considered over fewer scanning periods only when the number of signals in the active set is less than the threshold number (see p. 5 [0059 & 0065-0070] and claim 9 as addressed above).

Joshi fails to explicitly teach the signals in the active set are assigned to fingers of a rake receiver. However, the use of a rake receiver is very well in the art and implemented in CDMA systems to search for stronger pilot signals to ensure the continuation of a cellular communication connection as taught for example by Krause.

In an analogous field of endeavor, Krause teaches a method and apparatus for maintaining the pilot set of a wireless communication device, such as a portable radiotelephone operating in a CDMA system, wherein the method and apparatus significantly improves the device's performance in a rapidly changing environment by quickly and reliably determining and promoting strong neighbor pilots to the candidate

set and wherein the signals in the active set are assigned to fingers of a rake receiver (see col. 2, line 66 through col. 3, line 5 and col. 3, lines 41-55 and Fig. 1).

It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to modify Joshi with Krause to include a rake receiver, in order to reliably and quickly allocate strong pilots to the candidate set in a rapidly changing mobile environment, to avoid drop calls or lost communications on the active pilots as taught by Krause (see col. 2, lines 40-56 and col. 3, lines 1-5).

Regarding claim 18 and 19, Joshi in view of Krause teaches all the limitations of claim 17. Joshi further teaches operating the communications device in soft handoff with the signals in the active set (see p. 5 [0064]), dynamically changing the signal allocation criteria when the number of signals in the signal strength of the strongest signal in the active set changes relative to a signal strength threshold (see p. 5 [0064-0070]).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hughes, U.S. Patent Number 6,122,334 discloses pilot signal detection filter for a wireless communication device.

Welnick et al., U.S. Publication Number 2005/0085230 A1 discloses circuit and method for producing a pilot strength measurement message.

Proctor, JR., U.S. Publication Number 2004/0127220 A1 discloses antenna adaptation to manage the active set to manipulate soft hand-off regions.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony S. Addy whose telephone number is 571-272-7795. The examiner can normally be reached on Mon-Thur 8:00am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc M. Nguyen can be reached on 571-272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Anthony S. Addy
June 12, 2006

DUC NGUYEN
PRIMARY EXAMINER